

DEPARTMENT OF LAND RECORDS AND AGRICULTURE

UNITED PROVINCES OF AGRA AND OUDE.

BULLETIN No. 37.

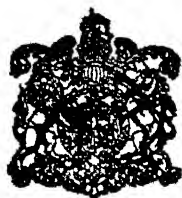
NOTES ON THE HISTORY, USES, and CULTIVATION of the PAPA

BY

H. J. DAVIES, F.R.S.A., F.R.H.S., Superintendent,

Government Horticultural Gardens,

Lucknow.



ALLAHABAD:

Notes on the History, Uses, and Cultivation of the Papaya.

INTRODUCTION.

The Papaya (or Papaw) is a fruit well known and widely cultivated in India, and eaten by all classes either in the ripe or green state. Its virtues are many and well understood, though a certain amount of superstition surrounds the fruit and various attributes are accorded it which do not exist except in the imagination.

Though the Papaya is one of our commonest Indian fruits and ranks amongst the first for lusciousness and appearance, it is not cultivated with that seriousness, energy and skill which are bestowed on many other fruits of far less value.

In most gardens it is usual to allow the plant to reproduce itself by seed in a haphazard fashion, and one more often than not finds the tree relegated to some obscure corner in the vegetable garden or in close proximity to a rubbish heap.

It is because the tree is so accommodating and will produce a certain class of fruit without any care or cultivation, that many people neglect to give it the attention it deserves.

It is easily proved that by cultivation the tree will bear a larger number of fruit and these will be bigger, of finer quality and more luscious than when the tree is neglected.

The Papaya is a prolific bearer and fruit may be had on the tree all the year round, though the finest flavoured are produced during the summer. The trees come into bearing when about nine months or a year old and each tree will bear from 10 to 20 good size fruits. Their value may be understood when it is said that in the bazar the price of the ripe fruit is from three annas to six annas each, and these not always of a very superior quality.

There is nothing to prevent everyone owning a garden from.

HISTORY

The Papaya or Papita is produced by a plant bearing the name of *Carica Papaya* L. and belongs to the Natural Order *Passifloraea*, tribe *Papayaceae*.

There are some 20 species of *Carica*, all of which are native of the warmer parts of the American continent. *Carica Papaya* is commonly cultivated throughout India from Delhi to Ceylon and is found in all tropical countries in both hemispheres.

It is not known for certain when the plant first found its way into India, but that it has existed in this country about 300 years is proved by the fact that seeds of the plant were sent from India to Naples in the year 1626, and it is very probable that its introduction took place shortly after the discovery of America and was brought over by the Portuguese.

The plant is not mentioned in Sanskrit literature.

Habit and structure.—The Papaya is an ornamental tree and grows to a height of from 10 to 20 feet. It has a palm-like appearance. The stem of the plant is spongy and fibrous and the wood useless as timber or firewood. The leaves of the tree are palmately seven-lobed and handsome. The flowers are, for the most part, inconspicuous, the male flowers alone having in the mass a certain form of beauty. In colour they are a greenish-white and their scent distinctly pleasing.

The disposition of the flowers of the Papaya is usually dioecious or unisexual, that is, the male and female flowers are borne on separate plants. At times, however, they are poygamous, in which cases unisexual and hermaphrodite flowers may be observed on the same plant. The female flowers are sessile or stemless, while the male flowers are borne on long peduncles. It may be unnecessary to mention that only the plants bearing female flowers produce good fruits, though at times plants with hermaphrodite flowers bear fruits which are eatable, especially in the green stage.

It is impossible to distinguish the difference between the male and female plants of the Papaya in the early stages of their growth, and it is only when flowers appear that the sex can

essential only for the reason that if the pollen of its flowers is not available the fruits on the female trees will not produce fertile seeds, hence no young stock can be raised from this source. On the other hand the female trees do not appear to be affected by the non-presence of a male tree and the fruit develops normally without loss of size or flavour. Plants raised from seed do not, except in a minority of cases, retain the good or peculiar qualities of the parents. Some 20 to 25 per cent. of the resulting seedlings may be as good or probably a trifle superior to their parents in points of stamina, prolificness and the merits of their fruit, while the rest will show corresponding failings. To obviate disappointment in this direction recourse may be had to grafting, the methods of which are explained in another chapter

The Papaya being a very succulent plant is short-lived as compared with most other fruit trees. The first two or three years of its life are given up entirely to producing fruit and in doing so practically exhausts itself.

The tree will survive for probably five or six years in a feeble condition and incapable of producing good fruit.

MEDICINAL AND OTHER PROPERTIES OF THE FRUIT.

It has already been mentioned that the fruit of the Papita is eaten by all classes in India both in the ripe and unripe stages.

In the ripe stage it is much esteemed by Europeans and is available during the early months of the hot season when other fruits are scarce. The fruit ripens best when allowed to remain on the tree until the apex presents a yellowish-brown colour. It may then be carefully removed and placed on a shelf in a room and covered with a thin layer of clean straw. This process of ripening brings out the full flavour of the fruit and improves its appearance. Bruised fruit will rapidly decay, hence care is needed in its handling.

When cooked, the Papaya is said to resemble a pumpkin in taste and may also take the place of apple sauce. The Indian makes full use of the green fruit, and judging by the quantities sold in the bazar, prefers it to the ripe fruit.

The medicinal properties of the Papaya are numerous and well-known to Indians. Authoritative works on the subject ascribe virtues to the fruit which should appeal to most people be they in robust health or suffering from complaints of a stubborn or painful nature.

The milk of the Papaya contains a ferment, which has an extraordinary action upon nitrogenous substances, and, like pepsin, curdles milk. The active principle when separated is called papaine and is an article of commerce in Europe for medicinal purposes and is said to be capable of digesting 200 times its weight of fibrine. A few drops of the milk will, it is said, render any meat tender.

The juice of the unripe fruit is reputed good for the digestion and most efficacious in dyspepsia.

It is also said to be a cure for skin affections and piles, also enlarged liver and spleen, and is good in chronic diarrhoea and in diphtheria. Ladies use the juice as a cosmetic to remove freckles ; it is also a powerful vermifuge. The ripe fruit is an excellent mild laxative.

The leaves of the plant appear to hold properties similar to the fruit, for it is recorded that they possess the remarkable quality of rendering meat wrapped in them for a few hours perfectly tender, they causing a complete separation of the muscular fibres.

The seeds of the Papaya are anthelmintic and have a pungent taste not unlike mustard.

CULTIVATION.

The cultivation of the Papaya is simple and easy, provided a few important points are taken into careful consideration. As

they are grown for commercial purposes, their full requirements must be considered.

It is usual to plant a row of the trees in private gardens, more often than not by the side of a path in the vegetable garden and where a good supply of water is available. In this position they probably find all that they need in the matter of soil and manure.

If, however, it is desired to grow the plant on a more or less extensive scale a plot of ground should be specially set apart for its cultivation.

The plant is one of the quickest-growing known, and, this being so the soil should be of a nature to support its growth.

The Papaya needs a good, rich, loamy soil with a liberal amount of old manure, which should be finally sifted before using. The holes for the reception of the trees should be dug to a depth of four feet with a similar diameter at the top.

If the soil is of a retentive nature, place nine inches or a foot of broken bricks or potsherds in the bottom of the holes. The Papaya is fond of moisture, but the land must be well drained. If the soil becomes water-logged, the trees will turn yellow and fail to set fruit.

The best time to prepare the holes for the young plants is during the hot dry season.

The soil removed should be allowed to remain on the surface for two or three weeks exposed to sun and air. Just before the rainy season is expected the soil may be returned, at the same time adding manure. After a few heavy showers of rain and the soil has settled planting may be done. When planting, care should be taken that the plants are not placed too deep in the ground.

If the collar, or point where the trunk ascends and root descends, be buried, there is a chance that the plant may damp off and perish. The distance between the plants may be 10 or 12 feet. This will give the trees room to freely develop

remembered* that the plant needs a fair amount of sun, abundance of light, and a liberal supply of water at all times. Trees in close proximity to the Papayas will enfeeble their growth and rob them of the food necessary for their full development. Planted at the distance mentioned above, it may be reckoned that about 400 trees will suffice to plant up one acre of land. When we calculate that in one year each female tree will bear from 20 to 25 large fruits, and if these be valued at three or four annas each, the profit to be derived from them is considerable.

The Papaya will produce some 30 or 40 fruits on one tree the first season, but if large fruits are wanted it is necessary to reduce the number by one-third. The green fruits removed may be disposed of in the market at a very fair figure.

PROPAGATION.

The Papaya is, in the ordinary way, raised These seeds should be selected from the best and They may be sown as soon as gathered in pans or boxes in loose, friable soil, such as old potting material. When the young plants are large enough to handle they should be transplanted into prepared beds or placed in pots. It is desirable that the young plants shall be sturdy and strong at the time they are planted out in their permanent quarters, hence they should not be coddled and should be kept steadily growing.

Watering should be carefully done, as the young seedlings are very succulent and rot away rapidly if the soil is too wet

It has been noted that plants raised from seed do not reproduce the good qualities of their parents in a proportion of more than one-fourth of the number raised. Again, one-fourth to one-half of the number may turn out to be male trees. This being the case, it may be readily understood that to prevent disappointment and to ensure that only female trees will result, recourse must be had to grafting.

This is done by decapitating the old female trees and encouraging them to produce lateral shoots. These will

When they are about a foot long they may be removed. In the meantime a number of young seedlings should have been raised, and when these have attained the thickness of a man's little finger, grafting may take place. The seedlings will be about two months old and the young shoot from the female tree should have the same thickness of stem as the seedling, to enable union to take place uniformly.

Grafting.—Grafting is done early in the rains by cutting off the top of the seedling and making a "V" shaped opening at the top. The slips from the female tree should have their ends cut into a "V" to fit into the seedling "V." Tie both together firmly, but not too tight, with some yielding material like plantain fibre or bast and protect them for a few days. Union quickly takes place and the season for planting is only slightly shortened. The operation of grafting is easily performed by any ordinary *mali* after being once shown.

Cuttings.—Cuttings taken as small side shoots from the old plants will root if the operation be performed in the hot season. They should be placed in sand under a bell glass or closed glass frame and watered very sparingly until rooted.

Varieties.—It is difficult to recommend any special variety of Papaya. A very large variety from the Loochoo Islands has points which would appeal to many people, while a similarly large kind from the Ootacamund district could possibly claim equal merits. The variety commonly grown in the United Provinces produces an abundance of large and excellent fruit when cultivated, and in point of flavour and general appearance is all that could be desired.

Insect pests.—The Papaya appears to have no insect enemies. At times, however, during the rains, certain biting insects attack the leaves of the trees, but do little or no permanent damage. The presence of these insects is usually due to long grass being allowed to grow up near the trees or, they find their way accidentally from a rubbish heap.

Among birds, crows are a nuisance, as they attack the fruit just as it is about ripen and do considerable damage.